IN THE CLAIMS

Claims 1-12. (Cancelled)

13. (New) A method for determining a signal transduction pathway that is influenced by an endocrine disrupting activity of a test substance, the method comprising:

a. exposing a cell to a test substance;

b. isolating a first mRNA from the cell that has been exposed to the test substance in step (a) and a second mRNA from a cell that has not been exposed to the test substance;

c. hybridizing the first mRNA and the second mRNA with a first probe and a second probe, wherein the first probe and the second probe may be the first mRNA and the second mRNA obtained in step (b), or the first probe and the second probe may be nucleic acids prepared using the first mRNA and the second mRNA as templates;

d. comparing signal intensities observed using the first probe with signal intensities observed using the second probe, wherein the signal intensities correspond to expression levels of genes in cells;

e. identifying a series of genes in which the expression levels are altered as a result of exposure of the cell to the test substance; and

f. determining a signal transduction pathway that is influenced by an endocrine disrupting activity of the test substance, wherein the signal transduction pathway involves the series of genes identified in step (f), wherein the genes on the DNA array comprise at least one gene for each of the respective groups (1) to (17):

(1) genes for a nuclear receptor or genes related to nuclear receptor transcriptional coupling;

(2) genes related to kinase signal transduction;

(3) genes related to gonad differentiation;

(4) genes for or related to a receptor kinase;

(5) genes for or related to an intermediate filament marker;

(6) genes related to cell cycle or growth regulation;

(7) oncogenes, genes related to an oncogene or genes related to tumor suppression;

(8) genes related to apoptosis;

(9) genes related to damage response, repair, or recombination of DNA;

(10) genes for or related to a receptor;

(11) genes related to cell death or

differentiation regulation;

(12) genes related to adhesion, motility, or invasion of a cell;

(13) genes related to angiogenesis promotion

(14) genes related to cellular invasion;

(15) genes related to cell-cell interaction;

(16) genes for or related to a Rho family, GTPase, or a regulator therefore; and

(17) genes for or related to a growth factor or a cytokine.

14. (New) A method for determining a substance that causes endocrine disruption in a manner similar to an endocrine disruptor, the method comprising:

a. exposing a cell to an endocrine disruptor or to a test substance;

b. isolating a first mRNA from the cells that has been exposed to the endocrine disruptor in step (a), isolating a second mRNA form the cell that has been exposed to the test substance in step (a), and isolating a third mRNA from a cell that has not been exposed tote endocrine disruptor or to the test substance;

c. hybridizing the first mRNA, the second mRNA,

and the third mRNA with genes on a DNA array using a first probe and a third probe, wherein the first probe and the third probe may be the first mRNA and the third mRNA obtained in step (b), or the first probe and the third probe may be nucleic acids prepared using the first mRNA and the third mRNA;

d. comparing signal intensities observed using the first probe with signal intensities observed using the third probe, wherein the signal intensities correspond to expression levels of genes in cells;

e. identifying a series of genes in which the expression levels are altered as a result of the exposure of the cell to the endocrine disruptor;

f. hybridizing the first mRNA, the second mRNA, and the third mRNA with genes on a DNA array using a second probe and a third probe, wherein the second probe and the third probe may be the second mRNA and the third mRNA obtained in step (b) or the second probe and the third probe may be nucleic acids prepared using the second mRNA and the third mRNA as templates;

g. comparing signal intensities observed using the second probe with signal intensities observed using the third probe, wherein the signal intensities correspond to expression levels of genes in cells;

h. identifying a series of genes in which the expression levels are altered as a result of the exposure of the cell to the test substance; and

i. determining if the test substance is a substance that causes endocrine disruption in a manner similar to the endocrine disruption by comparing the series of the genes identified in step (e) with the series of genes identified in step (h), wherein the genes on the DNA array comprise at least one gene for each of the respective groups (1) to (17);

(1) genes for a nuclear receptor or genes related to nuclear receptor transcriptional coupling;

(2) genes related to kinase signal transduction;

(3) genes related to gonad differentiation;

(4) genes for or related to a receptor kinase;

(5) genes for or related to an intermediate filament marker;

(6) genes related to cell cycle or growth regulation;

(7) oncogenes, genes related to an oncogene or genes related to tumor suppression;

(8) genes related to apoptosis;

(9) genes related to damage response, repair, or recombination of DNA;

(10) genes for or related to a receptor;

(11) genes related to cell death or differentiation regulation;

(12) genes related to adhesion, motility, or invasion of cells;

(13) genes related to angiogenesis promotion;

(14) genes related to cellular invasion;

(15) genes related to cell-cell interaction;

(16) genes for or related to a Rho family, GTPase, or a regulator therefore; and

(17) genes for or related to a growth factor or a cytokine.